



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Air Quality- Particulate Matter

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Description:

- Particulate matter (PM) is the term used to describe small particles found in the air, including dust, dirt, soot, smoke and liquid droplets.
- The Indiana Department of Environmental Management (IDEM) and the U.S. Environmental Protection Agency (U.S. EPA) set standards for inhalable particulate matter. Particulates are measured as “fine” particles of 2.5 microns or less (PM_{2.5}) and “coarse” particles between 2.5 and 10 microns (PM₁₀). In comparison, a human hair is about 70 microns in diameter.
- Fine particles derive from many different sources including industrial and residential combustion activities and vehicle exhaust, so their composition varies widely. Some particles are emitted directly into the air, such as from cars, trucks, buses, factories, constructions sites, tilled fields, unpaved roads, stone crushing and wood burning. Other particles are formed in the air from the chemical change of gases. They are indirectly formed when gases from burning fuels react with sunlight and water vapor. These gases come from fuel combustion in motor vehicles, power plants and other industrial processes.
- In September 2006, U.S. EPA revised ambient air quality standards for particulate matter. PM_{2.5} levels must not exceed an average of 15 micrograms per cubic meter (µg/m³) of air each year or an average of 35 µg/m³ in a 24-hour period. PM₁₀ levels must not exceed 150 µg/m³ over twenty-four (24) hours.
- Only two (2) Indiana counties measure air quality above the annual standard for PM_{2.5}. IDEM and U.S. EPA are working together to determine which Indiana counties currently measure PM_{2.5} levels above the new 24-hour standard. Areas will be formally designated under the new 24-hour PM_{2.5} standard in late 2008 or early 2009. No counties measure PM₁₀ levels above the standard.

Environmental Impacts:

- Particulate matter affects both human health and the environment, and unlike ozone, elevated levels can occur year-round.
- Particle pollution contains microscopic solids or liquid droplets that are so small they can get deep into the lungs and cause health problems, in sensitive groups such as the very young, elderly and those with heart or lung disease.
- PM_{2.5} (fine particles) is a major cause of reduced visibility and haze in parts of the U.S.
- Particulate matter can be carried long distances by the wind and can stain and damage stone and other materials, causing aesthetic damage to landmarks and municipal property.

IDEM's Role:

- IDEM is responsible for protecting air quality in Indiana through implementing federal, regional and state control measures, regulations and ambient monitoring.
- IDEM works to help communities meet these standards and encourages citizens and businesses to take an active role in improving air quality.

- Federal and state control programs like the Clean Air Interstate Rule, to be implemented beginning in 2009, will result in significant reductions of PM_{2.5} and further improved air quality.
- Through air quality monitoring and forecasting, certain days are designated Air Quality Action Days for particulate matter to inform sensitive groups. Air Quality Action Days for particulate matter can occur anytime of the year.
- Through these concerted efforts, Indiana has seen notable improvements in air quality over the last several years.

Citizen's Role:

- There are a number of actions every citizen can take to reduce their contribution to particulate matter pollution and improve overall air quality:
 - Avoid using leaf blowers and other dust-producing equipment.
 - Drive slowly on unpaved roads and other dirt surfaces.
 - Compost leaves, twigs and other yard waste instead of burning them.
 - Avoid unnecessary burning of trash, vegetation, wood and charcoal.
 - Keep automobiles properly maintained, including tire pressure and do not exceed the posted speed limit.
 - Carpool, walk, bike or use public transportation when possible.
 - Reduce home energy consumption by turning off lights, televisions and other appliances when not in use to reduce emissions from energy production.

More Information:

- For more information on the National Ambient Air Quality Standards for particulate matter, visit IDEM's Web site at: <http://in.gov/idem/5305.htm>.
- For daily regional forecasts of air quality for Indiana, visit IDEM's SmogWatch Web site at: <http://www.smogwatch.IN.gov>.
- For information on IDEM's LEADS continuous air monitoring program visit our Web site at: <http://www.in.gov/idem/airfacts/>.
- For air quality questions and concerns, feel free to call IDEM's Office of Air Quality at (317) 233-0178.